STOREFRONT
for Art & Architecture

DEGREES OF PARADISE

An introduction of
THE STATE OF HEAVEN
by
Mel Chin

September 13-October 26
1991
Gallery Hours: Tuesday-Saturday, 12-6pm
Opening Reception: September 13, 6-8pm
Drum performance by Tim Sternberg and Hearn Gadbois at the opening reception

"DEGREES OF PARADISE" is an installation to introduce Mel Chin's major effort in progress called **THE STATE OF HEAVEN**, a project centered on an immense floating hand-knotted carpet serving as a symbolic and sacrificial sky, which will be placed under a directive that parallels the actual destruction of the ozone layer. Emblematic stature of this ambitious undertaking, and its complex mechanics and structure, will be tested and revealed in the installation of **"DEGREES OF PARADISE"** at STOREFRONT.

    "DEGREES OF PARADISE" will be installed in three separate spaces within STOREFRONT. The first installation will present a Tantric-like graphic painting of an atmospheric envelope unfolding as the petals of a fragile flower. The image is an abstraction of a topological formula to transform the surface of a sphere into a square. This formula was used to create a pattern for the rug. Immediately to the left and right of the painting will be entrances to two specially designed triangular galleries.

    In one gallery, a 9ft. x 24ft. triangular "floating" carpet of hand knotted and naturally dyed wool will linger above the head of viewers. This "test" rug was woven by members of a traditional cottage industry in Damlacik, Turkey. Its unorthodox pattern represents a slice of a larger squared image of global meteorological configurations taken from satellite data in April 1989 and processed by a Cray 2 supercomputer. The triangular rug was commissioned to assess the skills of the weavers, to sample the quality of the materials, and to test its a floating harness in actual installation. The method of suspension tested here will be used later in determining the final mechanism to be employed for a huge 66ft. x 66ft. **STATE OF HEAVEN** rug. The large rug will serve as a scale replica of our imperiled atmosphere.

Traditionally, rugs can be seen as giving identity to their makers while providing utility and comfort. Seeking to describe the relationship between humanity and the unseen destruction of the zone of comfort the ozone layer affords, Chin conceived of the rug as a sky/heaven metaphor through etymological, poetic relationships.

"The dreams are better, not so geometrical, so apt to turn everything . . . the air, the sky, to Persian rugs." (Thomas Pynchon, Gravity's Rainbow)

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THE STATE OF HEAVEN, as a multidimensional fractal program, will be prominently displayed in the second gallery through a canopy of monitors. Arranged in a triangular configuration which echos the shape of the carpet, the video monitors will play back global images generated through the use of this program.

DEGREES OF PARADISE, however, is not limited to putting process on display, but is an artist's poetic method of describing and paying respect to the spectrum of his influences and collaborators. **DEGREES OF PARADISE** is a unique crosscultural interdisciplinary project which collectively describes and enlarges the methods available to understand and aid a non-visible part of our world.
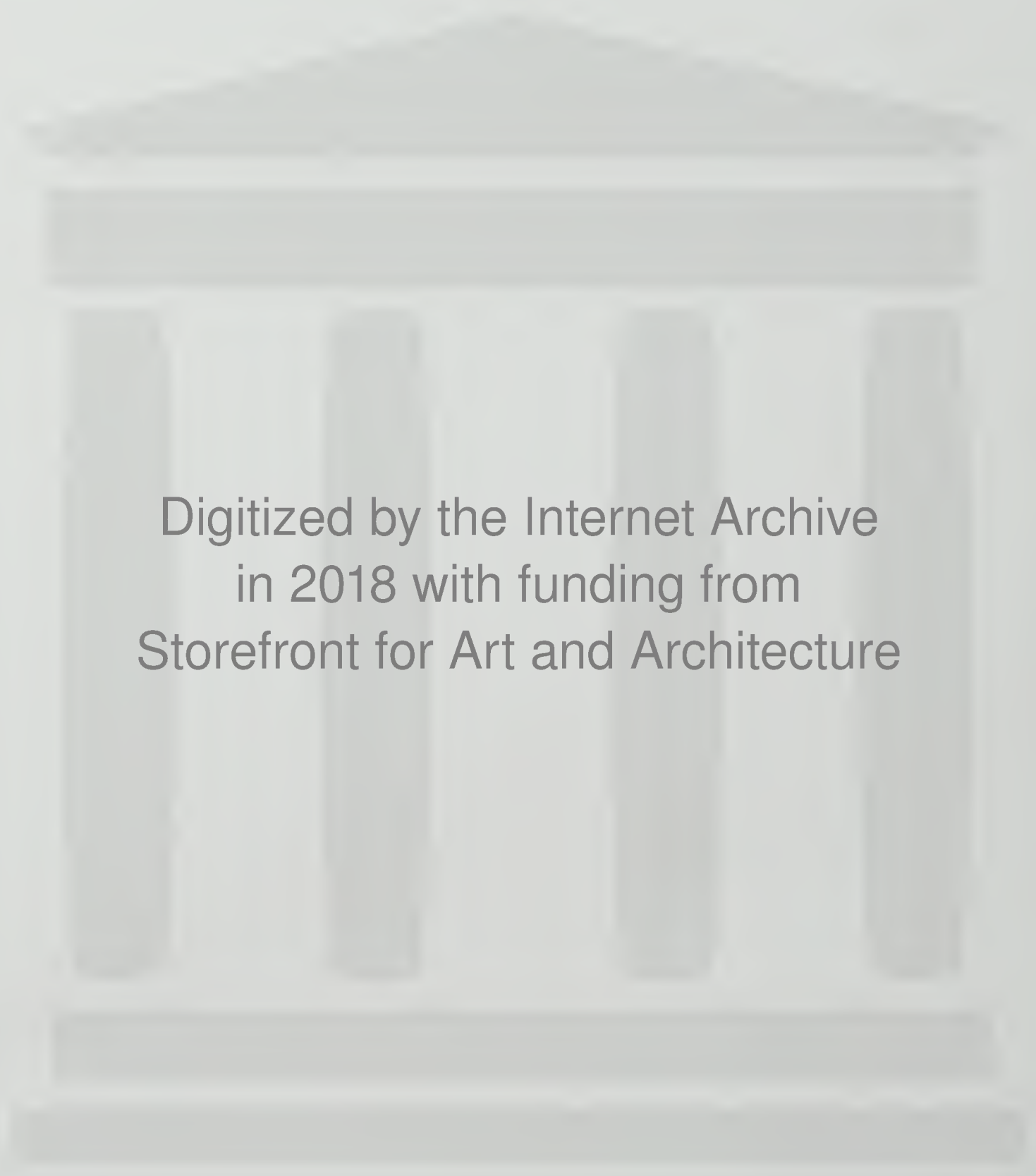
Mel Chin is an artist whose work encompasses a wide range of critical issues in contemporary politics and ecological concerns of global dimensions, by attributing to the cultures and tradition of third world countries, and to forms and resources that are indigenous to these cultures (often in suppression or at in danger of extinction.) Thus his work becomes complex fabric which counters the industrial and western view of domination and exploitation of regional and global interests. Born in Houston in 1951, and graduated from George Peabody College for Teachers in Nashville in 1975, his interest in esoteric cultures and unorthodox materials are the cornerstones of his art.

Directions: Mel Chin, a solo exhibition of his recent works and projects, was presented at Hirshhorn Museum and Sculpture (1989), Walker Arts Center (1990), The Menil Collection, Houston (1991), and will be at The Contemporary Arts Center, Cincinnati (1991), and The Queens Museum in New York(1991-92).

DEGREES OF PARADISE :

An Introduction to THE STATE OF HEAVEN

PROPOSAL FOR INSTALLATION

by

MEL CHIN

for

THE STOREFRONT FOR ART AND ARCHITECTURE

NYC

Contents:

THE STATE OF HEAVEN will directly address the severe nature of ozone depletion. The project will take the form of an immense hand-knotted carpet "floating" in its specifically designed structure and undergoing a continual state of programmed destruction.

The artist will enlist the collaboration of scientists and computer specialists who will generate global meteorological models based on satellite data and studies of cloud configurations. One of these hypothetical models will be enlarged and processed into a full scale (in excess of 4000 square feet or 65.7' x 65.7' Note: Each 1/8th inch sq. to equal 5 sq. miles) square knot-by-knot pattern for the carpet. Members of a traditional cottage weaving industry in the Near East will fabricate a rug using natural dyes and fibers according to these specifications.

Exhibition of the work calls for the suspension of the rug in a room with specialized lighting, curved reflective walls, and mechanical inventions within a nomadic tent-like housing. The carpet will be periodically lowered and raised to be destroyed or amended based on the most current data available from ozone monitoring satellites (e.g. NOAA 11). The extent of ozone damage will be composited by computer into a single image and scaled to match the original rug as a "pattern of loss." In this instance, a floating carpet, with all its magical, materialistic and aesthetic associations will be put under systematic abuse in order to emphasize a sense of loss and waste that parallels what is possibly a greater dilemma above it. The project will act as a tangible metaphor and monitor to engender consciousness through the systematic destruction of its symbolic sky and provide substance to an unseen but critical phase of human interaction with an imperiled habitat.

DEGREES OF PARADISE : AN INTRODUCTION TO THE STATE OF HEAVEN

This installation will operate within the architectural constraints of the Storefront for Art and Architecture to set up a working test model of the suspension system for the "floating" carpet and to premiere a unique multidimensional fractal model. Both are essential for the implementation of THE STATE OF HEAVEN. These works will be housed in two specially constructed triangular galleries. One gallery will exhibit a floating triangular rug hand woven in the village Damlacik, state of Kurden near Adiyaman, Turkey. In the other gallery, a triangle of suspended VCR monitors will play a tape of THE STATE OF HEAVEN mathematical program being devised by Physicists Shuan Lovejoy and Francois Begin of McGill University. This program will be a breakthrough in the use of multidimensional fractals to depict global dynamics. (Refer to Appendix A: Dr.S. Lovejoy, Dept. of Physics, McGill University).

The entrance to DEGREES OF PARADISE presents the viewer with a simple graphic painting on slate, done in the manner of a Tantric diagram, which depicts the unfolding of the atmospheric envelope as a fragile white flower. This image is an abstraction of a topological formula to transform the surface of a sphere into a square. (Refer to Appendix B: Dr. Oswald Wyler, Dept. of Mathematics, Carnegie Mellon University) The formula was utilized in creating the square pattern for the rug following the imaging of meteorological conditions out of raw global satellite data. It will be used in the final fractal model as well. Immediately to the left and right of the painting will be entrances to two galleries.

The carpet in gallery A was created from a pattern derived from satellite data on global cloud formations during the month of April 1989. Its triangular shape is a pie section out of a larger squared image of a day selected for its combination of cloud formations.   It was commissioned to test the weavers and materials and to get a tangible model from which methods to deal with the larger full-square rug may be derived. A key objective of the Storefront installation will be the design and construction of a specialized mechanical suspension device. The carpet will be supported by a complex system of spines and ribs which will be activated into "cloud-like" motion when a viewer enters the gallery. It is vital that the rug appear to float and not just to hang or be tacked onto the wall.

In gallery B, viewers will walk under floating monitors arranged to parallel the shape of the rug in gallery A. The screens will show patterns of moving clouds that have been generated using the Lovejoy and Begin mathematical model.   This State of Heaven model is a radical departure from existing systems which ignore certain elements and thus fail to represent actual conditions on a global scale. It represents a major development in the understanding of the dynamics of our world and is expected to have an impact on fields ranging from climatology to platectonics.

ELEVATION A :   THE STOREFRONT FOR ART AND ARCHITECTURE
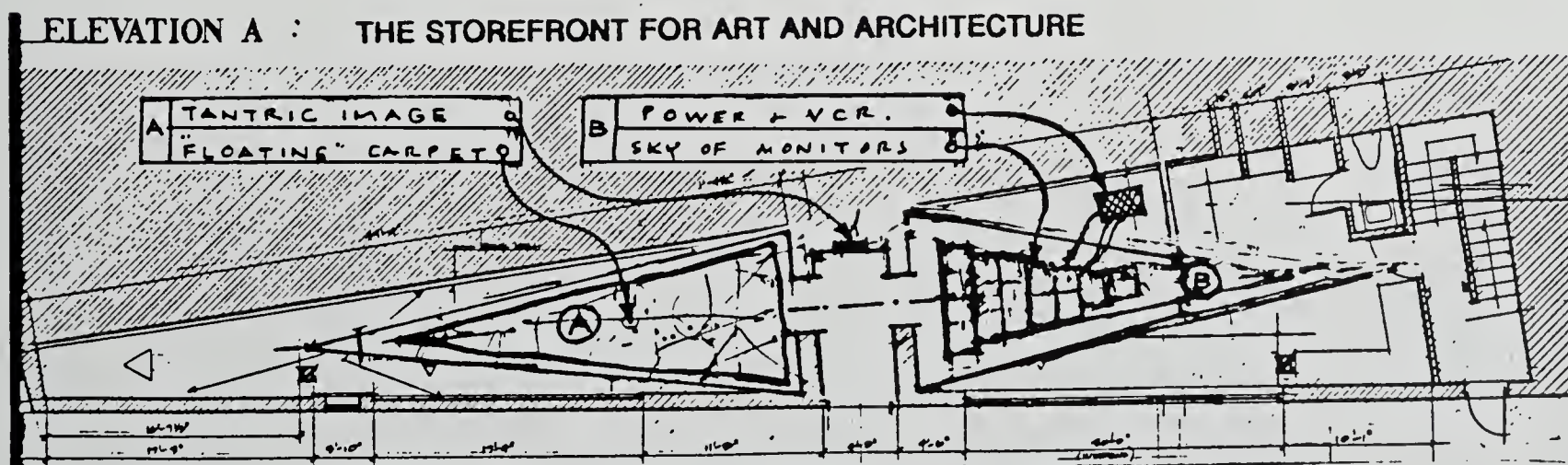
Fig. 1   PLAN for The Storefront installation.

ADDITIONAL NOTES AND ILLUSTRATIONS : DEGREES OF PARADISE

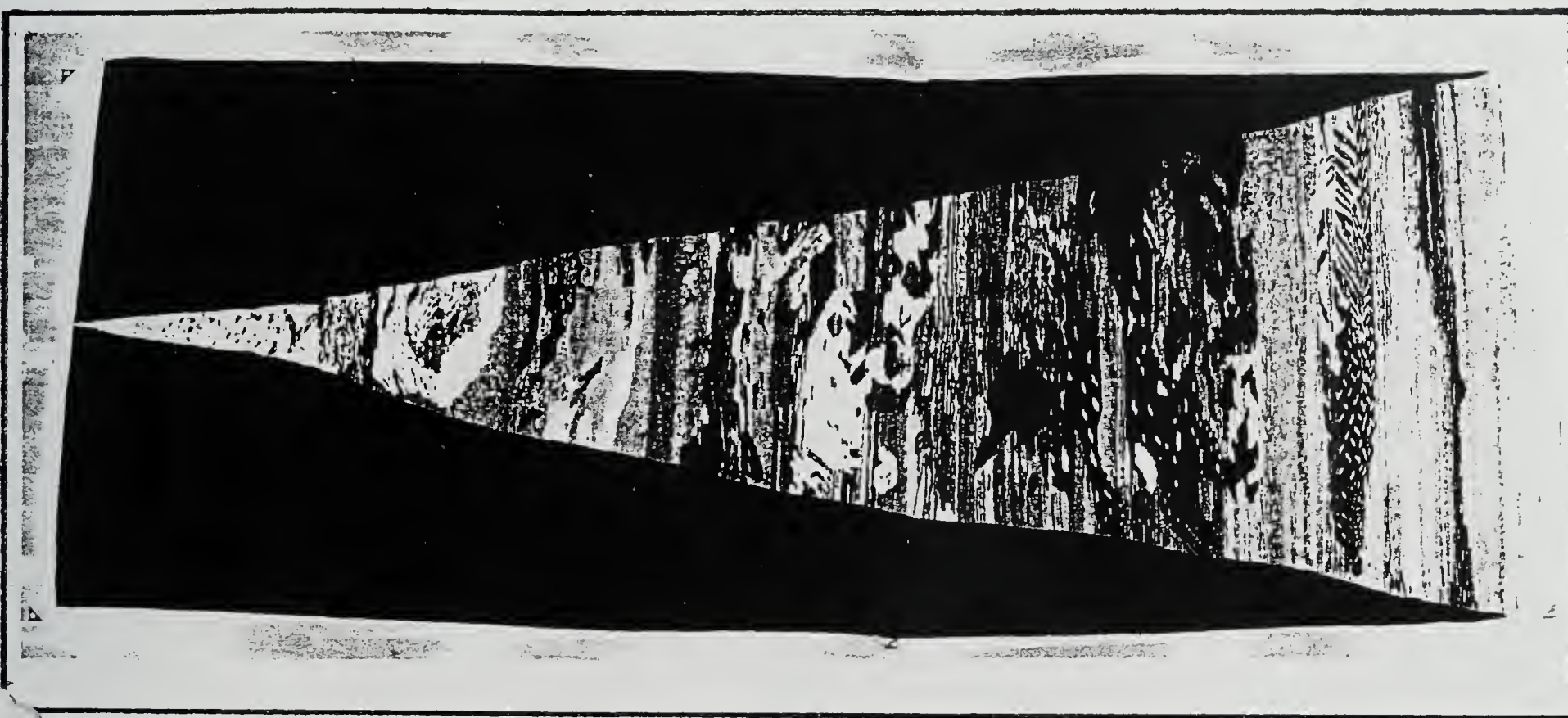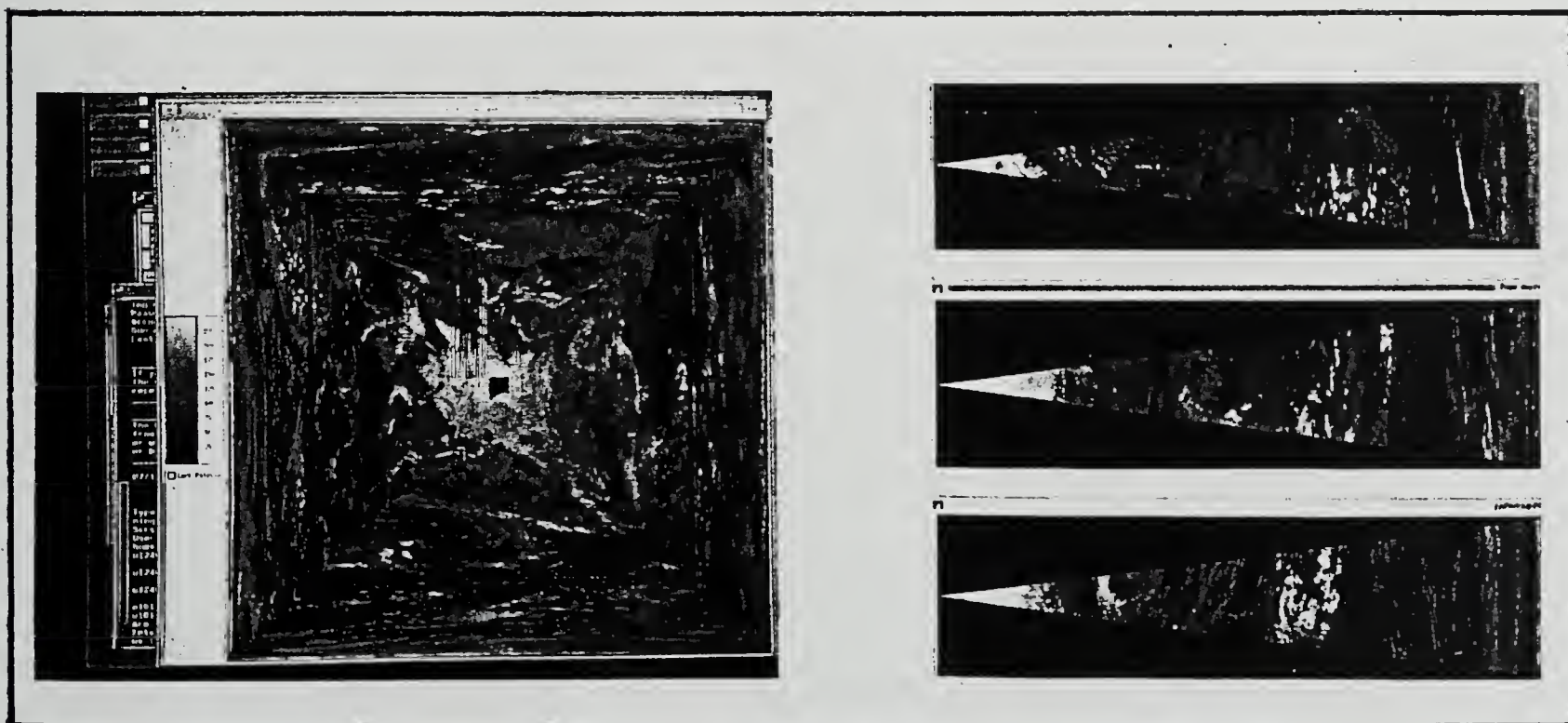Fig. 2   TEST CARPET: Hand knotted wool, natural dyes from Damlacik, Turkey.   Size : Approximate : 8' 9" x 24'

a.   b.

Fig. 3   a. Square and b. Triangles from Mapped GAC (Global area Coverage) Satellite data.   Computer Transformation by: Brian Jewett and Crystal Shaw, National Center for Supercomputing Applications, University of Illinois at Urbana-Champaign.

Fig. 4   Young Kurdish weavers at work on TEST CARPET for DEGREES OF PARADISE   Photo: George Jevremovic

Western Asia showing the distribution of some of the ethno-linguistic, nomadic and tribal groups associated with carpet weaving and the main centres of rural and urban production.

Uzbek	Ethno-linguistic and tribal groups	
	Kurdish language spoken by 50% or more of population	
→	Tribal migration between summer and winter pastures	
∴	Main concentrations of Yuruks (Nomadic [yuruk] groups also exist in the Kurdish speaking areas)	

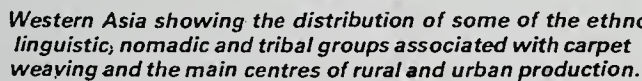|	
ISTANBUL	Major cities
Bursa	Cities/towns
-------	International boundaries
....	National boundaries
☐	Land over 2000 metres
MAKRAN	Regions
	Desert regions

0   500   1000 Kilometres

Fig. 5   Insert : Western Asia
         Detail : Location of Damlacik, Turkey (37°56' N - 38°39' E)

PROJECTED BUDGET : DEGREES OF PARADISE

MATERIALS.. 2,500.00

LABOR..3,500.00

ENGINEERING FEES (Consultation: Electrical/mechanical)........... 500.00

RENTAL (AV equipment: monitors and VCR)...................................2,000.00

TRAVEL (NYC to McGill Univ., Montreal, Canada: 3 Trips)............ 1,500.00

TOTAL 10,000.00

The State of Heaven: Multifractal dynamics

Seventy years ago, in a book entitled "Weather Prediction by Numerical Process", Lewis Richardson proposed that the extreme variability of the atmosphere results from the concentration of energy into smaller and smaller regions of space through a "cascade" process. In the 1980's, it became apparent that these cascades involved complex structures spanning wide ranges of scales: multifractals. Since then, we at McGill and the Météorologie Nationale in Paris (D. Schertzer et al) have developed a series of multifractal computer models of clouds, temperature and other geophysical fields. Unlike conventional meteorological or climatological models (such as the General Circulation Models -GCM's- used to predict global warming) which are limited to narrow ranges of scale, by allowing repeated "zooming", the multifractal models can cover the entire range from thousands of kilometers down to millimeters. For the first time, this makes it possible to produce images of clouds and other atmospheric fields which are simultaneously visually realistic as well as having a solid physical basis. Previously existing fractal models of clouds were for computer graphics - not science.

The models are controlled by two sets of parameters, one set of which determines the variabilility in time and space (which can be extreme), the other, the "texture" or morphology of the result. Using new data analysis techniques, it has recently been possible to use satellite photographs of clouds to estimate the relevant parameters. These can now be used to calibrate the models. At present, the latter have been made on large two dimensional grids (8000X8000 points are possible using moderate sized computers; videos have also been produced). We anticipate that the visual requirements of the "The state of heaven" will help us improve our multifractal models (which are still in their infancy). "The state of heaven" will thus help change the state of the earth.

Summary of Curriculum Vitae of Shaun Lovejoy

Born: 26/6/56, Ottawa, Canada.

Degreees: B.A. (1976), M.A. (1981), physics, Cambrige U.K.; phD. (1981), physics, McGill.

Positions: Assistant professor of physics (McGill, 1985-90), Associate professor of physics (McGill), 1990-present.

Publications: Over 50 journal papers on fractals in geophysics, over 100 papers in conference proceedings, 1 book.
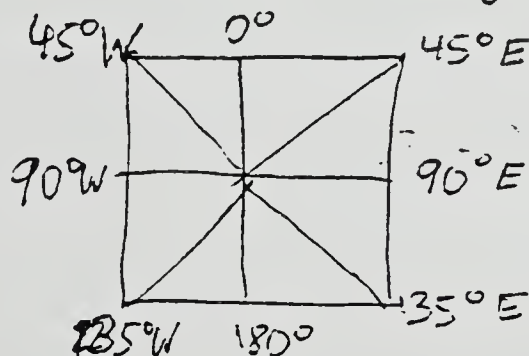

Equal area projection of sphere on square

Oswald Wyler

(1) Center of square: south pole

Boundary of square: north pole.

Circles of equal latitude become concentric squares
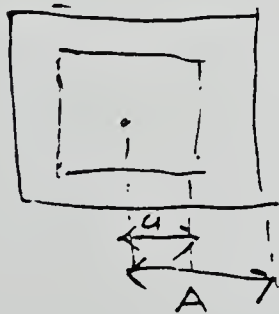
Meridians become straight rays through center

(2) Spherical cap area $\pi(\rho^2 + h^2)$ —

ρ radius, h height.

If γ is angle between axis and radius of sphere to boundary point, then

$$\rho = r \sin\gamma \quad, \quad h = r(1-\cos\gamma), \quad \text{area} = 2\pi r^2(1-\cos\gamma).$$

If axis through south pole, then $\gamma = \frac{\pi}{2} + \alpha$, where α northern latitude (negative on southern hemisphere), and $\cos\gamma = -\sin\alpha$

So if $(2A)^2$ is area of square, put

$a = A\sqrt{\dfrac{1+\sin\alpha}{2}}$ for $(2a)^2$ to be proportional to area south of latitude α.

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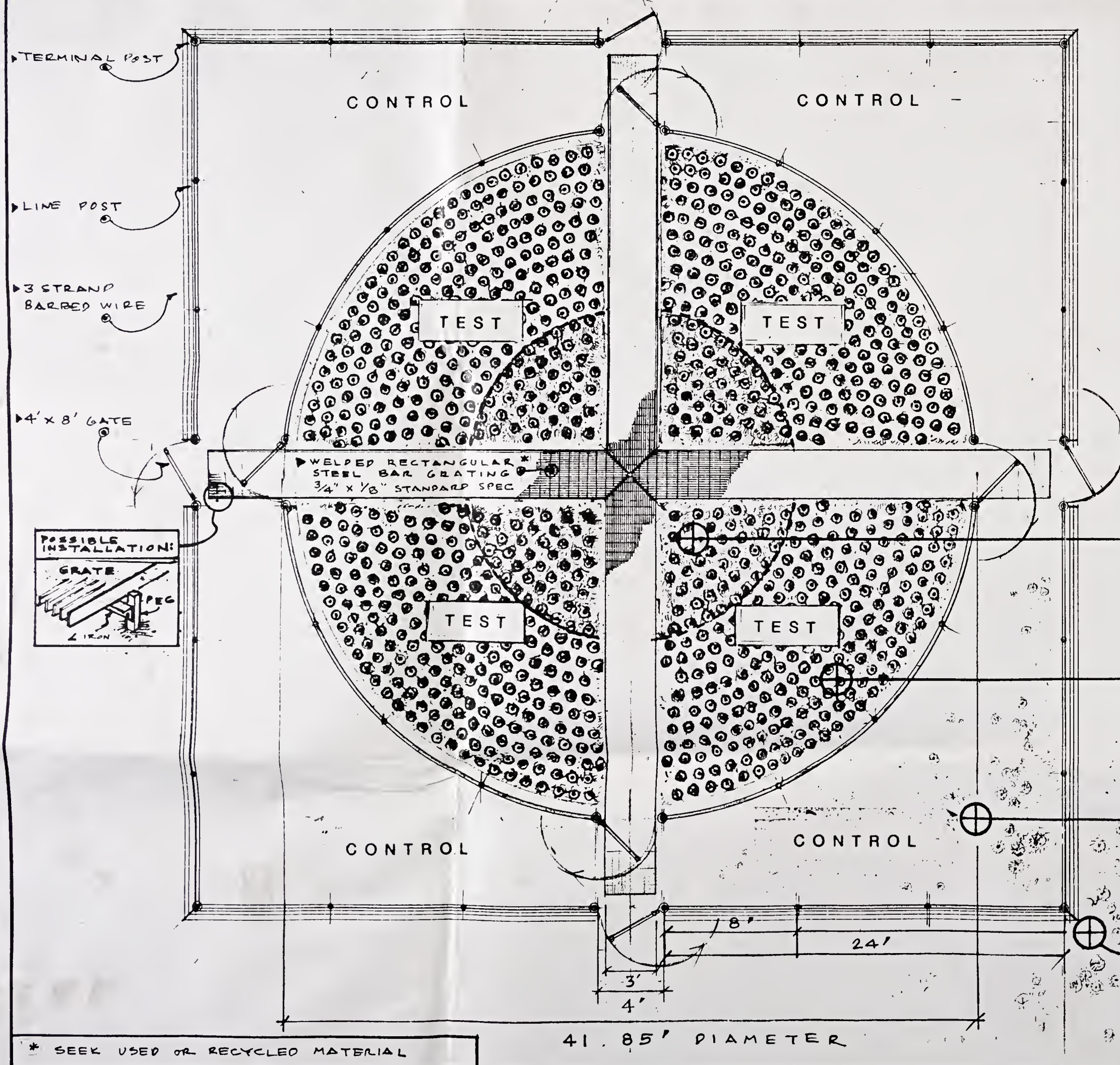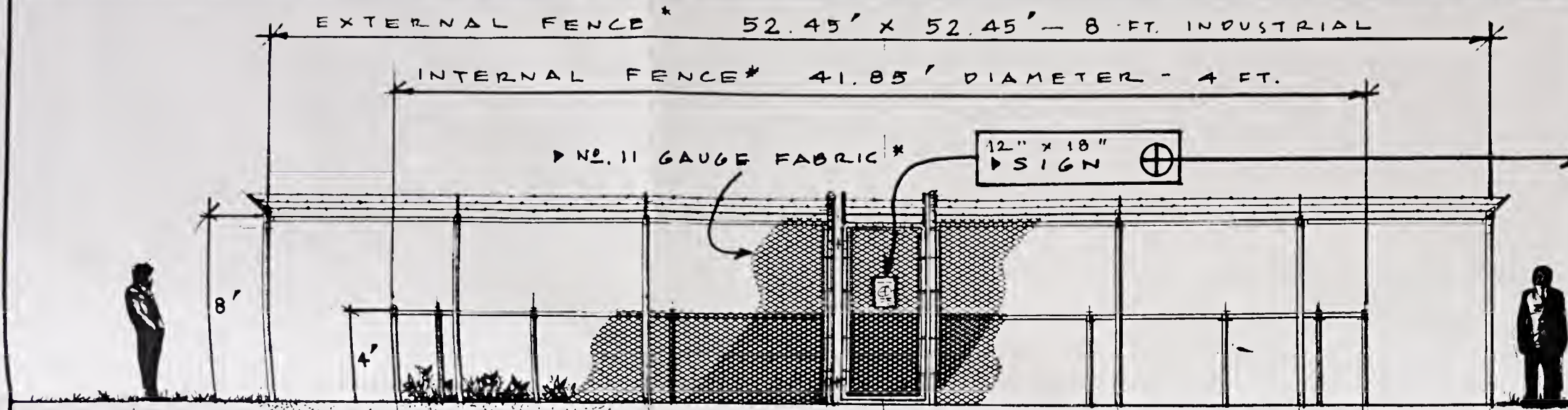
"R E V I V A L   F I E L D"   M. CHIN   1990

SCIENTIFIC ADVISOR:
Dr. Rufus L. Chaney
Senior Research Scientist, U.S.D.A.
Beltsville, Maryland

EXTERNAL FENCE* 52.45' X 52.45' — 8 FT. INDUSTRIAL

INTERNAL FENCE* 41.85' DIAMETER - 4 FT.

► No. 11 GAUGE FABRIC *

12" X 18"
► SIGN ⊕

8'

4'

ACTIVE:

BLACK

REVIVAL

GREEN   RED

METALLIC
GRAY   GREEN

BLACK

FIELD

INSERT: DATE OF PLANTING

SCALE OF 1/5" : 1 FT.
PLAN:

P H O T O : 3/4" to 1' SCALE MODEL

► TERMINAL POST

► LINE POST

► 3 STRAND
BARRED WIRE

► 4' X 8' GATE

► WELDED RECTANGULAR
STEEL BAR GRATING
3/4" X 1/8" STANDARD SPEC

POSSIBLE
INSTALLATION:

GRATE

PEG

2" IRON

CONTROL   CONTROL –

TEST   TEST

TEST   TEST

CONTROL   CONTROL

41.85' DIAMETER

8'   24'   3'   4'

* SEEK USED OR RECYCLED MATERIAL

► PROPOSED PLANTS ◄
"HYPERACCUMULATORS" for
TOXIC CONCENTRATIONS of Cd/Zn
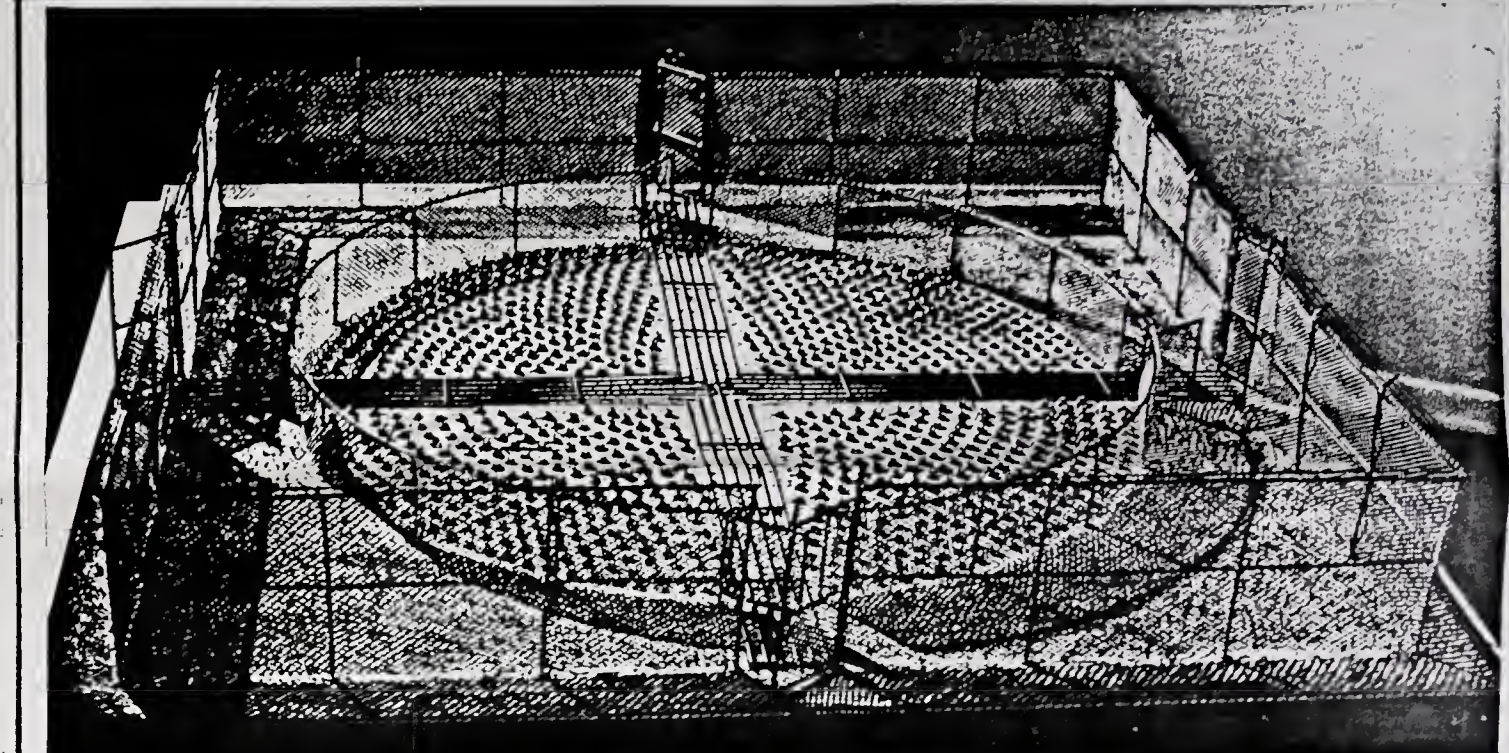
NOTE: SITE CONDITIONS MAY AFFECT :

a. PLANT CHOICES
b. REVIVAL FIELD CONFIGURATIONS

INTERNAL TEST CIRCLE :
ANNUAL SPECIES : 3 to 12 MONTH TEST
QTY. 172 PLANTS

- "SWEET" CORN Zea mays.

  Inbred dwarf variety (HR 44: Identified by
  T.D. Hinesley) capable of accumulating 100
  times the cadmium of normal corn.

  PLANTING : Normal fertilization (10/10/10*)
  1 ft. centers in accordance to
  pattern.

EXTERNAL TEST RING :
PERENNIAL SPECIES : CONTINUOUS TEST
QTY. 800 PLANTS

- BLADDER CAMPION, Silene cucabalis.

  A zinc and cadmium hyperaccumulator.
  Seeds from the correct ecotype to be
  germinated and transplanted on a site.

  PLANTING : Normal fertilization (10/10/10*)
  1 ft. centers in accordance to
  pattern.

CONTROL
PERENNIAL METAL TOLERANT SPECIES
QTY. SUBJECT TO SITE REQUIREMENTS

- MERLIN RED FESCUE, Festuca rubra.

  Not a high accumulator but a metal
  tolerant species that would serve in
  the control areas and in the prevention
  of erosion.

  PLANTING : Broadcast

- BEYOND THE CONTAINED REVIVAL FIELD AREA

  Any of the plants listed above or trials of other metal
  tolerant/accumulating species could be introduced.

* 10/10/10 is a common nitrogen (N), phosphorus (P) and
  potassium (K) based fertilizer used in gardening. Site
  conditions will also determine the needs or exclusion of
  these additives.